REMARKS

In the Office Action, the Examiner rejected claims 1, 3–8, and 10–12 under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent 5,253,299 ("*Ishida*") in view of IBM Technical, Recording or Broadcasting Automatic Gain Control Compressor ("*IBM*"). The Examiner rejected claims 2 and 9 under 35 U.S.C. § 103(a) as unpatentable over *Ishida* in view of *IBM* and further in view of U.S. Patent 5,170,437 ("*Strahm*").

Information Disclosure Statement

On May 17, 2002, Applicant submitted a Form PTO-1449 identifying a reference for consideration by the Examiner. Applicant has received no indication that the submitted reference has been considered. Applicant requests that the next communication from the Office include a copy of the Form PTO-1449 previously provided with an indication that the cited reference has been considered.

Amendment

Applicant has amended the pending claims as indicated in the listing of the claims to more appropriately define Applicant's invention.

Rejection under § 103(a)

To establish a *prima facie* case of obviousness under §103(a), each of three requirements must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine references or modify a reference. (MPEP § 2143 (8th ed. Rev. May 2004).) Second, there must be a reasonable expectation of success. (*Id.*) Moreover, both of these requirements must "be found in the prior art, and not based on applicant's disclosure." (*Id.*) Third, the reference or references, taken alone or in

combination, must disclose or suggest every element recited in the claims. (*Id.*) None of these elements is present. Applicant therefore traverses the rejection of claims 1–12.

Claim 1 recites, *inter alia*:

> A noise reduction apparatus which reduces a noise level of noise contained in an input signal, comprising: . . .
>
> a gain controlling device which generates a first control signal and a second control signal on the basis of the detected noise level, the first control signal being used for adjusting a level of the input signal so as to make the detected noise level equal to a predetermined threshold level, and the second control signal being used for adjusting a level of a reduced adjusted signal so as to restore the level of the reduced adjusted signal to an original level of the input signal;
>
> an adjusting device which adjusts the level of the input signal on the basis of the first control signal;
>
> a reducing device which reduces a level of the adjusted input signal in accordance with a predetermined reducing characteristic and generates the reduced adjusted signal; and
>
> a restoring device which restores the level of the reduced adjusted signal to the original level of the input signal on the basis of the second control signal.

Ishida discloses a noise reduction apparatus in an FM stereo tuner. The apparatus includes a circuit **2**, a noise eliminating circuit **3** for dividing a stereo differential signal into a plurality of frequency bands and output a composite signal of divisional stereo differential signals, and a circuit **4**. (*Ishida*, col. 2, lines 47–58.) The noise eliminating circuit **3** includes a plurality of band pass filters **7-1–7-n**, control circuits **15-1–15-n**, and variable level adjusting circuits **13-1–13-n**. (*Id.*, Figure 5.) In operation, the circuit **2** outputs a stereo sum signal (L+R) to circuit **4** and a stereo differential signal to noise eliminating circuit **3**, which outputs a composite signal (L–R)'

to circuit **4**. (*Id.*, col. 4, ll. 41–42; col. 5, ll. 5–8; Figure 5.) The stereo differential signal transmits to band pass filters **7-1–7-n**, which divide the differential signal into n signals. (*Id.*, col. 4, ll. 3–45; Figures 3 and 5.) The filtered signals are output to control circuits **15-1–15-n**, "which output control signals B_1 through B_n corresponding to the quantity deviation between the reference level signals V_{th1}–V_{thn} and the divisional stereo differential signals." (*Id.*, col. 6, ll. 15–20; Figure 5.) The output of band pass filters **7-1–7-n** and signals B_1 through B_n input to variable level adjusting circuits **13-1–13-n** (e.g., voltage controlled amplifiers). (*Id.*, col. 6, ll. 21–24, Figure 5.) The variable level adjusting circuits **13-1–13-n**, along with the control circuits **15-1–15-n**, prevent extreme levels over the frequency bands of divisional stereo differential signals of omitted frequency components. (*Id.*, col. 4, lines 10–13, col. 6, lines 12–25; Figure 5.) The outputs of variable level adjusting circuits **13-1–13-n** are added to each other in adder **10**, and output from noise eliminating circuit **3** as a composite signal (L–R)' to circuit **4**. (*Id.*, col. 5, ll. 5–8; Figure 5.) Therefore, *Ishida* discloses dividing a stereo differential signal according to frequency range and controlling each output differential signal according to a single control signal, which corresponds to the deviation between a reference level signal and a divisional stereo differential signal.

Ishida's disclosure of dividing a stereo differential signal according to frequency range and controlling each output differential signal according to a single control signal, which corresponds to the deviation between a reference level signal and a divisional stereo differential signal, however, is not the same as "*a gain controlling device which generates a first control signal and a second control signal on the basis of the detected noise level, the first control signal being used for adjusting a level of the input signal* so

as to make the detected noise level equal to a predetermined threshold level, and *the second control signal being used for adjusting a level of a reduced adjusted signal* so as to restore the level of the reduced adjusted signal to an original level of the input signal," as recited in claim 1 (emphasis added). In fact, no portion of *Ishida* teaches or suggests the "gain controlling device which generates a first control signal and a second control signal," recited in claim 1.

Ishida also fails to disclose or suggest "an adjusting device *which adjusts the level of the input signal on the basis of the first control signal*," and "a reducing device *which reduces a level of the adjusted input signal* in accordance with a predetermined reducing characteristic and generates the reduced adjusted signal," as further recited in claim 1.

IBM also fails to compensate for these deficiencies. *IBM* discloses compressing a signal recorded at a "constant volume which is high enough to mask all background noise," transmitting the compressed signal, and decompressing the transmitted signal. (*IBM*, paragraph 2.) This is not the same, however, as the "gain controlling device," the "adjusting device," or the "reducing device" recited in claim 1.

The Examiner acknowledges that *Ishida* fails to teach "a restoring device which restores the level of the reduced adjusted signal to the original level of the input signal on the basis of the second control signal," as recited in claim 1. (June 16, 2004 Office Action at 3.) But the Examiner asserts that *IBM* compensates for this deficiency. (*Id.*) Applicant disagrees. *IBM's* disclosure of decompressing a transmitted signal is simply not the same as "a restoring device which restores the level of the reduced adjusted

signal to the original level of the input signal on the basis of the second control signal," as recited in claim 1. No other portion of *IBM* teaches or suggests this claim element.

The Examiner identifies no motivation to combine *Ishida* with *IBM*. According to the Examiner, "IBM teaches that a restoring device (see fig. c) for restoring a level of said reduced adjusted input signal to say level of said input signal (see disclosure text). Therefore, it would have been obvious to one of ordinary skill in the art to utilize the teachings of IBM into Ishida to provide quality audio signal." (June 16, 2004 Office Action at 3.) Applicant disagrees with the Examiner's characterization of *IBM*. As indicated above, *IBM* discloses compressing a signal recorded at a constant volume high enough to mask all background noise, transmitting the compresses signal, and decompressing the transmitted signal. (*IBM*, paragraph 2.) *Ishida*, however, nowhere discloses compressing a signal. Thus, to combine the references, the principle of operation of either *IBM* or *Ishida* must change. This prohibits a finding that there is motivation to combine the references. (MPEP § 2143.01 ("If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims prima facie obvious.").)

Additionally, there must a reasonable expectation of success. *IBM* discloses compressing a signal, transmitting the compressed signal, and decompressing the transmitted signal. *Ishida*, however, no where discloses compressing a signal. Thus, there is no reasonable expectation of success in combining the references.

Because there is no motivation to combine the references, no expectation of success in combining the references, and the references individually and combination

fail to disclose or suggest each claim element, claim 1 is allowable over the cited references. Claims 3–7 are also allowable at least because of their dependence from allowable claim 1. Withdrawal of the rejection of these claims is respectfully requested.

Claim 8 recites, *inter alia*:

> A noise reduction method which reduces a noise level of noise contained in an input signal, comprising: . . .
>
> a gain controlling process which generates a first control signal and a second control signal on the basis of the detected noise level, the first control signal being used for adjusting a level of the input signal so as to make the detected noise level equal to a predetermined threshold level, and the second control signal being used for adjusting a level of a reduced adjusted signal so as to restore the level of the reduced adjusted signal to an original level of the input signal;
>
> an adjusting process which adjusts the level of the input signal on the basis of the first control signal;
>
> a reducing process which reduces a level of the adjusted input signal in accordance with a predetermined reducing characteristic and generates the reduced adjusted signal; and
>
> a restoring process which restores the level of the reduced adjusted signal to the original level of the input signal on the basis of the second control signal.

For the reasons given above with respect to claim 1, there is no motivation to combine *Ishida* with *IBM* and there is no expectation of success in combining the references. Further, although different in scope from claim 1, claim 8 similarly recites, "a gain controlling process which generates a first control signal and a second control signal on the basis of the detected noise level, the first control signal being used for adjusting a level of the input signal so as to make the detected noise level equal to a predetermined threshold level, and the second control signal being used for adjusting a

level of a reduced adjusted signal so as to restore the level of the reduced adjusted signal to an original level of the input signal," "an adjusting process which adjusts the level of the input signal on the basis of the first control signal," and "a reducing process which reduces a level of the adjusted input signal in accordance with a predetermined reducing characteristic and generates the reduced adjusted signal."

Ishida's disclosure of dividing a stereo differential signal according to frequency range and controlling each output differential signal according to a single control signal, which corresponds to the deviation between a reference level signal and a divisional stereo differential signal is not the same as the "gain controlling process," the "adjusting process," or the "reducing process," as reciting claim 8. Moreover, no other portion of *Ishida* teaches or suggests these elements. *IBM* also fails to compensate for these deficiencies.

The Examiner did not provide independent bases for rejecting claim 8, but instead noted the rejection of claim 1. (June 16, 2004 Office Action at 4.) Presumably the Examiner acknowledges that *Ishida* fails to teach or suggest, "a restoring process which restores the level of the reduced adjusted signal to the original level of the input signal on the basis of the second control signal," as recited in claim 8, but asserts *IBM* compensates for this deficiency. Applicant disagrees. As indicated above, *IBM* merely discloses decompressing a transmitted signal. (*IBM*, paragraph 2.) This is not the same as, "a restoring process which restores the level of the reduced adjusted signal to the original level of the input signal on the basis of the second control signal," as recited in claim 8. No other portion of *IBM* teaches or suggests this claim element.

Because there is no motivation to combine the references, no expectation of success in combining the references, and the references individually and combination fail to disclose or suggest each claim element, claim 8 should be allowed over the references. Claims 10–12 should likewise be allowed at least because of their dependence from allowable claim 8. Withdrawal of the rejection of these claims is respectfully requested.

Strahm discloses an audio signal energy level detector. *Strahm*, however, fails to compensate for the deficiencies of *Ishida* and *IBM* with respect to both claims 1 and 8. Thus, *Strahm* in combination with *Ishida* and *IBM* cannot render claims 2 and 9 obvious, which depend from allowable claims 1 and 8, and each should be allowed over the cited references. Withdrawal of the rejection of these claims is respectfully requested.

In view of the foregoing, Applicant respectfully requests reconsideration of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account no. 06-0916.

Respectfully submitted,

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